



**STATE OF MONTANA  
MONTANA DEPARTMENT OF TRANSPORTATION  
JOB PROFILE**

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Update  
Formal Review

**Date Submitted** \_\_\_\_\_

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***SECTION I - Identification***

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**Working Title:**  
Surveyor II

**Department:**  
Transportation

**Class Code Number:** 171255

**Division & Bureau:**  
District or  
Engineering Division, Highways Bureau

**Class Code Title:**  
Surveyor

**Section & Unit:**  
District Survey Unit or  
Photogrammetry & Survey Section

**Pay Band:** 5

**Work Address:**  
Statewide

**Position Number:** 90768, 91948, 91308, 91318, 90098,  
35013, 35014, 98099, 92518

☐ FLSA Exempt    ☒ FLSA Non-Exempt

☐ Non-Union    ☒ MPEA    ☐ Blue Collar

**Profile Completed By:**  
Bryce Larsen & District Surveyors

**Work Phone:**  
406-444-6321

***Work Unit Mission Statement or Functional Description:***

The MDT's mission is to serve the public by providing a transportation system and services that emphasize quality, safety, cost effectiveness, economic vitality and sensitivity to the environment.

The Highways and Engineering Division prepares projects for bidding and coordinates highway construction. The division is made up of the Preconstruction and Construction programs; and five District Construction Offices in Missoula, Butte, Great Falls, Glendive, and Billings for budget and workforce purposes.

The Preconstruction program plans and develops details for construction projects. This includes determining location and design features, conducting public hearings and working with local officials, acquiring property for right-of-way and processing contracts up to the time they are awarded to private contractors. The Highways Bureau is made up of diverse programs in the Road Design, Hydraulics and Photogrammetry and Survey Sections.

The Photogrammetry and Survey Section is responsible for the Montana Department of Transportation's photogrammetry and survey programs. Acting as the authority on survey issues for the Department, the Survey Unit is responsible for providing land surveying services, analyzing and

reviewing surveys, coordinating surveys, formulating and implementing MDT survey policy, assuring quality of surveys, securing and managing survey data, serving as the MDT's technical support and resource center for survey issues, and determining and implementing time efficient and cost-effective survey methods.

Each District has a District Survey Unit that is administratively under the District Engineering Services or District Construction program and is under the technical oversight of the Helena Photogrammetry & Survey Section. The District Survey Units are responsible for providing land surveying and support services at the District level.

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***Describe the Job's Overall Purpose:***

This position is a journey level Surveyor (**Surveyor II**). The position is responsible for performing advanced technical and professional field survey work; serving as party chief for field surveys; reviewing surveys to determine the validity of the evidence and methods used and to ensure accurate survey information; maintaining equipment and inventories; and performing other duties as assigned. The position reports directly to the Land Survey Manager or District Land Survey Manager.

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***SECTION II - Major Duties or Responsibilities***

***% of Time***

**A. Field & Office Surveying**

**55% of Time**

Performs a variety of advanced technical, pre-professional and professional field, office and administrative duties in support of ongoing land survey projects and operations.

1. Researches public and private records (i.e.- Bureau of Land Management, National Geodetic Survey, United States Geological Survey, county courthouse, county surveyors, private surveyors, etc.) to recover title, monument, and/or other survey histories pertinent to the survey being conducted.
2. Contacts landowners to obtain permission to survey, to discuss and document special right-of-entry conditions and to inquire about landowner knowledge of boundary evidence.
3. Solicits evidence of original boundary locations including working with landowners to identify and document parcel evidence.
4. Conducts field survey activities by planning tasks required to complete field survey operations, issuing instructions to crew members, identifying and recovering monuments and other survey evidence, operating survey instruments, recording data, and performing other related field survey tasks. Operates or oversees the operation of machinery and equipment required to accomplish survey tasks including: vehicles, electronic total stations, engineering/digital levels, data collectors, GPS equipment, calculators, computers and software, other standard survey tools and equipment, and various hand tools used for digging, cutting, marking, etc.
5. Performs the following land surveying tasks under the supervision of a professional land surveyor: planning surveys, determining how to best delegate survey tasks among crew members, property corner search, retracing GLO surveys, retracing property boundaries, retracing highway right-of-way, writing legal descriptions, preparing plats, preparing corner recordations, staking property boundaries, making land survey calculations, providing recommendations to the professional land surveyor, etc.

6. Solves problems that arise during surveys, which includes correcting inaccurate surveys, identifying and obtaining missing data, communicating with landowners, troubleshooting survey software, and resolving various other problems and errors.
7. Organizes, computes, and adjusts survey data to be used in compiling reports, maps, plats and exhibits. Examples of these duties include: reducing field notes, making section break-down calculations, making proportionate measurement calculations, adjusting traverses and level notes, drafting, completing corner recordation forms and calculating surveys.
8. Compiles and completes corner recordation documentation for certification by professional land surveyor. This requires the compilation and validation of information in relation to the Corner Recordation Act.
9. Incorporating research information, gathered field data, computational data, and professional judgments, etc. prepares final documents (i.e. - maps, plats, exhibits, control diagrams, certificates of survey, reports, control abstracts, coordinate listings, etc.) to be used in engineering planning and design, right-of-way acquisition and/or for submission to other agencies.
10. Submits completed surveys to the professional land surveyor for review, approval, signature, and distribution. Provides professional surveyor with explanations and supporting evidence of what decisions were made and why.
11. Provides technical support on troubleshooting surveys, surveying procedures, and MDT surveying policy to assure correctness and accuracy of survey information.
12. As assigned by the Land Survey Manager or appropriate District Land Survey Manager, conducts training sessions for district survey crews on complex survey procedures and the use of state-of-the-art survey equipment and methods.
13. Under the Land Survey Manager or appropriate District Land Survey Manager direction, develops and tests new survey procedures and equipment for the purpose implementing time efficient and cost-effective survey methods and procedures into the survey program.
14. Positions located in Photogrammetry & Survey participate in maintaining the National Geodetic Survey (NGS) vertical control network by replacing NGS bench marks, running levels in accordance with NGS specifications, and preparing level data for submission to NGS.

**B. Review Surveys**

**10% of Time**

Reviews in house generated surveys.

1. Reviews surveys for soundness of approach, compliance with MDT survey procedures, and compliance with state and federal laws. This position reviews all types of control and topographic surveys, plus preliminary reviews of cadastral surveys. This requires analyzing evidence and methods used, determining the quality of the survey data collected as well as considering a multitude of other variables involved with each survey.
2. Identifies areas of non-conformance or substandard work and refers them to the Land Survey Manager or appropriate District Land Survey Manager with recommendations for final action.

**C. Survey Party Chief**

**25% of Time**

Serves as party chief for field surveys to ensure the timely and efficient collection and recordation of survey data.

1. Directs and oversees location and pre-construction surveys to ensure survey data is collected in the proper sequence and manner to support survey and project development operations. This includes consulting with section staff and management, evaluating survey resources (e.g., staff and equipment), and evaluating survey methods, sequencing and time requirements to plan multiple and concurrent survey projects.
2. Determines required survey, documentation, and data collection activities for project sites through discussion with the Professional Land Surveyor, and compare these requirements to available staff and their related expertise/abilities to determine how to complete projects.
3. Reviews survey requests to determine manpower, time, equipment and informational data needed to complete the survey. Determines duty assignments on the site and provides oversight.
4. Observes survey crews to determine compliance with established methods and techniques, and survey and recording requirements. Notify staff or appropriate supervisor of improper practices or safety concerns. Reports on performance to the supervisor on a daily basis and as part of the formal evaluation process.
5. Provides technical assistance to district survey crews on adjustment and operation of survey equipment to assure the full potential of the equipment is being realized.
6. Develops specific on the job training plans for field survey staff on proper survey methods and techniques and on the operation and maintenance of equipment as directed by a professional land surveyor.

**D. Equipment Maintenance**

**5% of Time**

Maintains equipment and supply inventories to ensure availability and proper functioning to support survey operations.

1. Tests new survey procedures and equipment to provide the Land Survey Manager or appropriate District Land Survey Manager information necessary to incorporate time efficient and cost-effective survey methods and procedures into the survey program. This includes GPS, digital levels, CADD station, etc. Ensures accurate calibration, determines measurements/features and their practical application to survey work, makes recommendations to supervisor and PLS.
2. Evaluates, organizes, and prepares equipment to be used in surveys conducted by the Survey Unit.
3. Adjusts, maintains, and cleans survey equipment to assure proper alignment, operation, and safety.
4. Orders and maintains an inventory of survey supplies to assure availability when needed.
5. Positions located in Photogrammetry & Survey are responsible for reviewing calibration baseline reports for all MDT survey grade electronic measuring devices and maintaining a record of these reports to establish an adjustment and performance history for each instrument.

**E. Other Duties**

**5% of Time**

Performs a variety of other duties as assigned in support of Section, Bureau and MDT goals and objectives. Examples of other duties are: assisting other MDT programs on special projects and attending training and educational sessions as required.

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***Which of the duties and/or specific tasks listed under 1. (above) are considered “essential functions” that must be performed by this position (with or without accommodations)? (If you need information or training on the identification of essential functions, please contact MDT Human Resources Division.)***

The following duties are considered essential functions because they require specialized expertise and skill and are the primary reasons the job exists:

Duty A: **Field Surveying**

Duty B: **Review surveys**

Duty C: **Survey party chief**

Duty D: **Equipment maintenance**

The following mental and physical demands are associated with these essential functions:

**PHYSICAL**

- Lifting objects in excess of 30 lbs.
- Extensive travel throughout the state or district to project locations
- Ability to walk over uneven terrain or in water
- Operating a personal computer
- Communicating in writing, in person and over the phone
- Continual walking or standing
- Exposure to extreme weather and high-speed traffic
- Operation of motor vehicles
- Operation of power tools and/or equipment

**MENTAL**

- Computing arithmetic operations
- Comparing data
- Compiling information, Analyzing, Coordinating, Synthesizing, Negotiating, Instructing
- Ability to multi-task
- Ability to meet inflexible deadlines
- Decision-making that affects the public health and safety
- Instructing
- Interpersonal skills/behaviors
- Dealing with the public on a regular basis
- Demands for accuracy in all aspects of work

***Does this position supervise others?***      ☒ **Yes Provides oversight**      ☐ **No**

**Number directly supervised:**      varies

**Position Number(s) of those supervised:**

Serves as party chief for routine field surveys by following instructions provided by PLS. A crew of one to three field people encompassing all levels of Engineering Techs., Rotational Engineers, and Survey Aides are typically assigned to a survey project that involves personnel from the Survey Unit or the District Survey Unit.

***Attach an Organizational Chart.***

ATTACHED

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***SECTION III - Minimum Qualifications - List minimum requirements for the first day of work.***

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**Critical knowledge and skills required for this position:**

**KNOWLEDGE:**

This position requires thorough knowledge of the principles and practices of surveying, geometry, trigonometry, and statistics. The position requires knowledge of survey equipment; survey computation and adjustment software; documentation and research techniques; MDT survey policy and procedures; survey datum; the B.L.M. Manual of Instructions for the Survey of Public Lands; statute law and common law relating to property boundaries; legal principles of land surveying; the Montana Subdivision and Platting Act; and the Certified Corner Recordation Act. The position requires a working knowledge of MDT highway design and construction.

**SKILLS:**

This position requires skill in the use and operation of survey instruments of all types; planning and executing geodetic control, project control, photogrammetric control, hydrographic, topographic, land (cadastral), retracement, quality control, and construction surveys; operating and troubleshooting computers and survey computation and adjustment software; and in reading and interpreting maps and plans.

**Behaviors required to perform these duties?**

**See MDT Core Behaviors.**

**Education:**

Check the one box indicating minimum education requirements for this position for a new employee the first day of work:

- |   |   |
|---|---|
| <input type="checkbox"/> No education required                | <input checked="" type="checkbox"/> Related AAS/2-years college/vocational training |
| <input type="checkbox"/> High school diploma or equivalent    | <input type="checkbox"/> Related Bachelor's Degree                                  |
| <input type="checkbox"/> 1-year related college/voc. training | <input type="checkbox"/> Related Master's degree                                    |

**Please specify the acceptable and related fields of study:**

**Required/Acceptable:** Associate's degree in land surveying or geomatics or related field from an accredited college or university.

**Related:** Civil Engineering Technology or Construction Technology or other curriculums with coursework in math, drafting, surveying techniques, principles, and practices

**Other education, training, certification, or licensing required (specify):**

- Requires possession of a Montana Land Surveyor Intern (LSI) certificate.
- Requires a valid Montana Drivers License.

**Experience:**

Check the one box indicating minimum work-related experience requirements for this position for a new employee the first day of work:

- |   |  |
|---|--|
| <input type="checkbox"/> No prior experience required | <input type="checkbox"/> 3 to 4 years    |
| <input checked="" type="checkbox"/> 2 years           | <input type="checkbox"/> 5 or more years |

**Other specific experience (optional):** Requires a minimum of two (2) years of progressively responsible experience in control survey, construction survey, topographic survey, engineering survey and/or land survey including experience as a survey party chief.

**Alternative Qualifications:**

This agency will accept alternative methods of obtaining necessary qualifications.

☒ Yes   ☐ No

**Alternative qualifications include:**

Other related education and experience combinations may be considered.

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***SECTION IV – Other Important Job Information***

Strenuous physical activities are required on the job including digging, cutting, hiking, and packing equipment in excess of 30 lbs. Survey activities are done year around throughout the state exposing the Surveyor to hazards associated with extreme climatic conditions, remote areas, rough terrain, surveying along highway corridors, and risk of injury from potentially dangerous animals. Extensive statewide travel from the Helena headquarters or district office/reporting station and shifts other than normal are required to accomplish department goals and objectives.

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☐ Fingerprint check

☒ Valid driver's license

☒ Driver's record check

☐ Background check

☐ Other; Describe

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**SECTION V – Signatures**

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Signature indicates this statement is accurate and complete.

***Employee:***

Name: \_\_\_\_\_ Title: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

***Immediate Supervisor:***

Name: Bryce Larsen \_\_\_\_\_ Title: Supervisor Photogrammetry & Survey

Signature: \_\_\_\_\_ Date: 11/30/09

***Division/District Administrator:***

Name: \_\_\_\_\_ Title: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

***Department Designee:***

Name: Jennifer Jensen/Designee Title: Chief Human Resources Officer  
Human Resources Division

Signature: \_\_\_\_\_ Date: \_\_\_\_\_